

Claims

- [c1] 1. A system for determining a stylus position of a stylus, the system comprising:
a telemetric imager; and
a controller electrically coupled to the telemetric imager;
wherein the controller determines the stylus position based on a generated image of a stylus tip from a first direction and a generated image of the stylus tip from a second direction when the stylus tip is in a stylus entry region.
- [c2] 2. The system of claim 1, wherein the stylus comprises one of a pen, a pencil, a pointer, or a marker.
- [c3] 3. The system of claim 1, wherein the stylus tip allows writing on a writable medium while the controller determines the stylus position.
- [c4] 4. The system of claim 1, wherein the stylus includes a writing-mode imaging target near a writing end of the stylus.
- [c5] 5. The system of claim 1, wherein the stylus includes an erasing-mode imaging target near an erasing end of the stylus.

- [c6] 6. The system of claim 1, wherein the telemetric imager comprises two optical imaging arrays to generate the image of the stylus tip from the first direction and the image of the stylus tip from the second direction when the stylus tip is in the stylus entry region.
- [c7] 7. The system of claim 1, wherein the telemetric imager comprises one optical imaging array to generate the image of the stylus tip from the first direction and the image of the stylus tip from the second direction when the stylus tip is in the stylus entry region.
- [c8] 8. The system of claim 1, wherein the stylus entry region comprises a writable medium.
- [c9] 9. The system of claim 8, wherein the writable medium comprises one of a sheet of paper or a pad of paper.
- [c10] 10. The system of claim 1 further comprising:
a writable medium positionable in the stylus entry region.
- [c11] 11. The system of claim 1 further comprising:
a light source positioned near the telemetric imager;
wherein light emitted from the light source illuminates the stylus tip when the stylus tip is in the stylus entry region.

- [c12] 12. The system of claim 11, wherein the light source is one of a modulatable light source or an unmodulatable light source.
- [c13] 13. The system of claim 11, wherein the light source is selected from the group consisting of a light-emitting diode, a laser diode, an infrared light-emitting diode, an infrared laser, a visible laser, an ultraviolet light-emitting diode, an ultraviolet laser, a light bulb, and a light-emitting device.
- [c14] 14. The system of claim 1 further comprising:
a controllable light source positioned near the telemetric imager;
wherein a first set of images of the stylus tip from the first direction and the second direction are generated with the light source on, and wherein a second set of images of the stylus tip from the first direction and the second direction are generated with the light source off;
and
wherein the first set of images and the second set of images are compared to determine the stylus position.
- [c15] 15. The system of claim 1 further comprising:
an optical filter positioned between the telemetric imager and the stylus tip;

wherein the optical filter preferentially passes light from the stylus tip to the telemetric imager.

[c16] 16. The system of claim 1 further comprising:
a communication port connected to the controller to enable communication between the controller and a digital computing device.

[c17] 17. The system of claim 16, wherein the communication port is one of a wired port or a wireless port.

[c18] 18. The system of claim 1 further comprising:
a housing;
wherein the telemetric imager and the controller are contained in the housing.

[c19] 19. The system of claim 18 further comprising:
at least one stylus holder formed within the housing;
wherein the stylus holder receives the stylus for stylus storage.

[c20] 20. A method of determining a stylus position, the method comprising:
positioning a stylus tip of a stylus in a stylus entry region;
generating an image of the stylus tip from a first direction;
generating an image of the stylus tip from a second di-

rection; and

determining the stylus position based on the generated images from the first direction and the second direction when the stylus tip is in the stylus entry region.

[c21] 21. The method of claim 20, wherein the image of the stylus tip from the first direction is generated with a first optical imaging array and the image of the stylus tip from the second direction is generated with a second optical imaging array.

[c22] 22. The method of claim 20, wherein the image of the stylus tip from the first direction and the image of the stylus tip from the second direction are generated with one optical imaging array.

[c23] 23. The method of claim 20 further comprising:
illuminating the stylus tip with a light source when the stylus tip is in the stylus entry region.

[c24] 24. The method of claim 20 further comprising:
turning on a light source to illuminate the stylus tip;
generating a first set of images of the stylus tip from the first direction and from the second direction;
turning off the light source;
generating a second set of images of the stylus tip from the first direction and from the second direction;

comparing the first set of generated images with the second set of generated images; and
determining the stylus position based on the comparison.

- [c25] 25. The method of claim 20 further comprising:
determining one of a writing mode or an erasing mode
when the stylus tip is in the stylus entry region.
- [c26] 26. The method of claim 20 further comprising:
determining a stylus angle of the stylus when the stylus
tip is in the stylus entry region.
- [c27] 27. The method of claim 20 further comprising:
determining a stylus rotation of the stylus when the stylus
tip is in the stylus entry region.
- [c28] 28. The method of claim 20 further comprising:
writing on a writable medium with the stylus tip when
the stylus tip is in the stylus entry region.
- [c29] 29. The method of claim 20 further comprising:
sending the determined stylus position to a digital computing
device.
- [c30] 30. The method of claim 20 further comprising:
interpreting the determined stylus position.
- [c31] 31. A system for determining a stylus position, the sys-

tem comprising:

means for positioning a stylus tip of a stylus in a stylus entry region;

means for generating an image of the stylus tip from a first direction;

means for generating an image of the stylus tip from a second direction; and

means for determining the stylus position based on the generated images from the first direction and the second direction when the stylus tip is in the stylus entry region.

[c32] 32. The system of claim 31 further comprising:

means for illuminating the stylus tip with a light source when the stylus tip is in the stylus entry region.

[c33] 33. The system of claim 31 further comprising:

means for turning on a light source to illuminate the stylus tip;

means for generating a first set of images of the stylus tip from the first direction and from the second direction;

means for turning off the light source;

means for generating a second set of images of the stylus tip from the first direction and from the second direction;

means for comparing the first set of generated images with the second set of generated images; and

means for determining the stylus position based on the comparison.

- [c34] 34. The system of claim 31 further comprising:
means for determining one of a writing mode or an erasing mode when the stylus tip is in the stylus entry region.
- [c35] 35. The system of claim 31 further comprising:
means for determining a stylus angle of the stylus when the stylus tip is in the stylus entry region.
- [c36] 36. The system of claim 31 further comprising:
means for determining a stylus rotation of the stylus when the stylus tip is in the stylus entry region.
- [c37] 37. The system of claim 31 further comprising:
means for writing on a writable medium with the stylus tip when the stylus tip is in the stylus entry region.
- [c38] 38. The system of claim 31 further comprising:
means for sending the determined stylus position to a digital computing device.
- [c39] 39. The system of claim 31 further comprising:
means for interpreting the determined stylus position.